

Version with Markings to Show Changes Made - 127 -

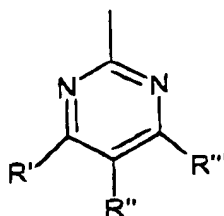
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4. Claim 1,  
Compounds according to any of the preceding claims

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where

R<sup>I</sup> represents a radical of the formula



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in which

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R<sup>I</sup> represents NH<sub>2</sub>.

R<sup>II</sup> represents optionally substituted morpholinyl, piperidinyl, piperazinyl, pyrrolidinyl, triazolyl or thiomorpholinyl

20

and

R<sup>III</sup> represents hydrogen or NH<sub>2</sub>.

25

5. Compounds according to Claim 4 in which R<sup>II</sup> represents morpholinyl.

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6. Process for preparing the compounds of the general formula (I) according to Claim 1,  
 characterized in that  
 depending on the various meanings of the heterocycles listed above under R<sup>2</sup>  
 and R<sup>3</sup>

[A] compounds of the general formula

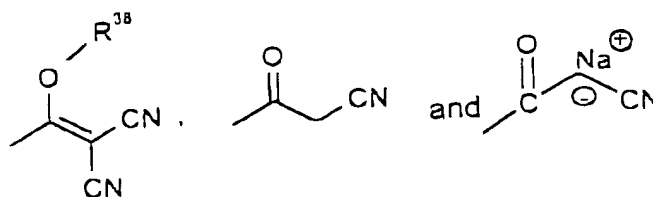


in which

R<sup>1</sup> is as defined above *in Claim 1,*

and

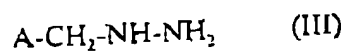
D represents radicals of the formulae



in which

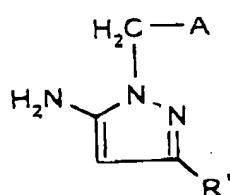
R<sup>18</sup> represents C<sub>1</sub>-C<sub>4</sub>-alkyl

are converted, by reaction with compounds of the general formula (III)

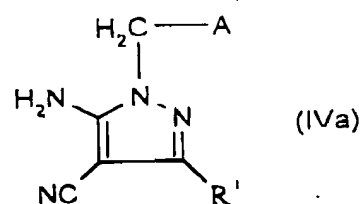


in which

5                    A        is as defined above *in Claim 1*,  
 in inert solvents, ~~if appropriate in the presence of a base~~, into the compounds of  
 the general formula (IV) or (IVa)



(IV) and



(IVa)

10

in which

A and R'        are each as defined above

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*in Claim 1*

and, in the case of the compounds of the general formula (IVa), are  
 subsequently cyclized with carboxylic acids, nitriles, formamides or  
 guanidium salts,

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and, in the case of the compounds of the general formula (IV), are  
 cyclized with 1,3-dicarbonyl derivatives, their salts, tautomers, enol  
 ethers or enamines, in the presence of acids and ~~if appropriate, under~~  
~~microwave irradiation.~~

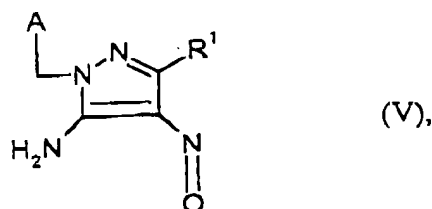
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or

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[B] in the case that  $R^2$  and  $R^3$  together form a pyrazine ring, compounds of the general formula (IV) are initially converted by nitrosation into the compounds of the general formula (V)

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in which

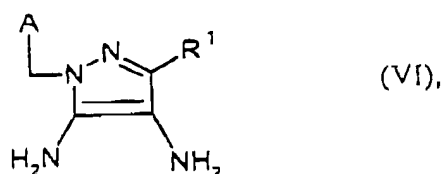
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A and  $R^1$  are each as defined above,

*in Claim 1*

in a second step, the compounds of the general formula (VI)

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in which

A and  $R^1$

are each as defined above *in Claim 1,*

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are prepared by a reduction.

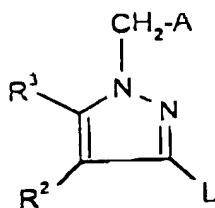
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and these are subsequently cyclized with 1,2-dicarbonyl compounds, ~~preferably~~  
~~aqueous glyoxal solution,~~

or

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[C] compounds of the general formula (VII)



(VII),

in which

10

A<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are each as defined above *in Claim 1,*

and

15

L represents a radical of the formula -SnR<sup>39</sup>R<sup>40</sup>R<sup>41</sup>, ZnR<sup>42</sup>, iodine, bromine or triflate

in which

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R<sup>39</sup>, R<sup>40</sup> and R<sup>41</sup> are identical or different and each represents straight-chain or branched alkyl having up to 4 carbon atoms

and

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R<sup>42</sup> represents halogen

are reacted with compounds of the general formula (VIII)

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$R^1-T$  (VIII),

in which

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$R^1$  is as defined above *in Claim 1*,

and

in the case that  $L = SnR^{39}R^{40}R^{41}$  or  $ZnR^{42}$ ,

15

$T$  represents triflate or represents halogen, ~~preferably bromine~~

and,

in the case that  $L =$  iodine, bromine or triflate,

20

$T$  represents a radical of the formula  $SnR^{39}R^{40}R^{41}$ ,  $ZnR^{42}$  or  $BR^{43}R^{44}$

in which

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$R^{39}$ ,  $R^{40}$ ,  $R^{41}$  and  $R^{42}$  have the meanings of  $R^{39}$ ,  $R^{40}$ ,  $R^{41}$  and  $R^{42}$  given above and are identical to or different from them,

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$R^{43}$  and  $R^{44}$  are identical or different and each represents hydroxyl, aryloxy having 6 to 10 carbon atoms or straight-chain or

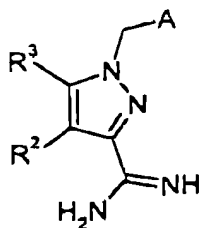
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branched alkyl or alkoxy having in each case up to 5 carbon atoms, or together form a 5- or 6-membered carbocyclic ring

in a palladium-catalysed reaction in inert solvents, ~~if appropriate in the presence of a base,~~

or

[D] in the case that R<sup>1</sup> represents an optionally substituted pyrimidine radical, amidines of the general formula (IX)

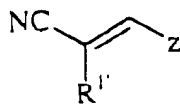


(IX),

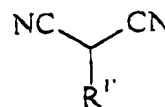
in which

A, R<sup>2</sup> and R<sup>3</sup> are each as defined above in Claim 1,

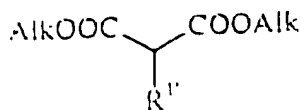
are reacted, ~~for example~~ with compounds of the general formula (X), (Xa), (Xb) or (Xc)



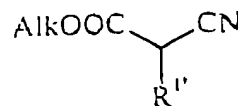
(X)



(Xa)



(Xb)



(Xc)

in which

R' represents the optionally substituted cycloalkyl radical listed above under R<sup>1</sup>;

Alk represents straight-chain or branched alkyl having up to 8 carbon atoms, ~~preferably up to 4 carbon atoms;~~

and

Z represents an NH<sub>2</sub> group, a monoalkylamino group having up to 7 carbon atoms, a dialkylamino group having up to 7 carbon atoms, a piperidiny1 or morpholinyl radical which is attached via the nitrogen, hydroxyl, alkoxy having up to 7 carbon atoms, acyloxy having up to 7 carbon atoms or aryloxy having 6 to 10 carbon atoms,

and, in the case of the groups -S(O)<sub>c</sub>NR<sup>6</sup>R<sup>7</sup> and -S(O)<sub>c</sub>NR<sup>6</sup>R<sup>7</sup>, starting from the unsubstituted compounds of the general formula (I), reacted initially with thionyl chloride and, in a second step, with the appropriate amines

~~and, if appropriate,~~ the substituents listed under X, Y, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and/or R<sup>4</sup> are modified or introduced by ~~customary methods, preferably by~~ acylation of free amino groups or hydroxyl groups, chlorination, catalytic hydrogenation, reduction, oxidation, removal of protective groups and/or nucleophilic substitution.

7. Medicaments, comprising at least one compound of the general formula (I) according to Claim 1.

*and a pharmaceutically acceptable carrier.*



8. ~~Process for preparing medicaments, characterized in that at least one compound of the formula (I) according to Claim 1, if appropriate with customary auxiliaries and additives, is converted into a suitable administration form.~~ canceled
- 5 9. Medicaments, comprising at least one compound of the general formula (I) according to Claim 1 in combination with organic nitrates or NO donors.
- 10 10. Medicaments, comprising at least one compound of the general formula (I) according to Claim 1 in combination with compounds which inhibit the degradation of cyclic guanosine monophosphate (cGMP).
11. ~~Use of compounds of the general formula (I) according to Claim 1 for preparing medicaments.~~ canceled
- 15 12. ~~Use of compounds of the general formula (I) according to Claim 1 for preparing medicaments for the treatment of cardiovascular diseases.~~ A method of treating a ~~comprising administering to a mammal an effective amount of a compound according to Claim 1.~~
13. ~~Use of compounds of the general formula (I) according to Claim 1 for preparing medicaments for the treatment of hypertension.~~ the method of Claim 12, wherein said cardiovascular disease is
- 20 14. ~~Use of compounds of the general formula (I) according to Claim 1 for preparing medicaments for the treatment of thromboembolic disorders and ischemia.~~ A method of treating ~~comprising administering to a mammal an effective amount of a compound according to Claim 1.~~
- 25 15. ~~Use of compounds of the general formula (I) according to Claim 1 for preparing medicaments for the treatment of sexual dysfunction.~~ A method of treating a
16. ~~Use of compounds of the general formula (I) according to Claim 1 for preparing medicaments having antiinflammatory properties.~~ A method of treating inflammation
17. ~~The method of claim 12, 13, 14, 15 or 16, where the compounds of the general formula (I) according to Claim 1 are used in combination with organic nitrates.~~ The method of claim 12, 13, 14, 15 or 16, where the compounds of the general formula (I) according to Claim 1 are ~~used~~ administered in combination with organic nitrates

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or NO donor ~~or in combination with compounds which inhibit the degradation~~  
~~of cyclic guanosine monophosphate (cGMP)~~